JOURNAL OF A COLLECTING EXPEDITION TO THE MOUNTAIN OF BATANG PADANG, PERAK.

BY

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ON Monday, the 6th of June, 1888, in accordance with instructions received, I left Taiping and proceeded to Telok Anson in the S.S. *Kinta,* and after seeing the baggage put on board a river-boat, and paying a visit to the Superintendent, Lower Perak, started at about 10 A.M. on the 7th for Tapa. At the half-way Resthouse I was met by a pony, and rode the rest of the way, reaching Tapa at 6.30 P.M.

The first four or five miles of road from Durian Sabatang passes through a nearly level country, which, judging from appearances, is eminently suited to the growth of padi or sugar-cane. The surface soil is rich and black, and, from what can be seen of it by inspecting the ditches, is of considerable depth. The upper part of the road near Tapa also passes through some fine land, but it is of quite a different character, being hilly and with a reddish yellow soil, light and quite sandy in places. Its quality is shown by the luxuriant growth of the various products which have been already planted, such as bananas, pepper, coco-nuts, Indian corn, &c. The latter can be planted many times in succession on the same land without manure. The rule in other parts of the State is that only one crop of this plant can be taken off even virgin forest land. So that it is evident there must be in the soil near Tapa considerable quantities of some inorganic substance which is essential to the growth of maize, and which is present in the soil of other parts of Perak only in minute quantities. The rock from which much of this soil is derived is a paleozoic schistose formation. There is also, of necessity, in

the soil a considerable admixture of the detritus of the granitic formations of which the higher hills in Batang Padang, as in other parts of the State, are exclusively composed.

My party consisted of Mr. JELLAH, the Collector and Taxidermist of the Museum, a Kling called HARISON, whom I engaged to help in the collection of botanical specimens—he having had three or four years' experience in the same work with the late Mr. KUNSTLER—a Malay called MAHRASIT, and a Malay "boy" who accompanied the late Mr. CAMERON on many of his explorations. The two former came up in the boat to Tapa with the baggage, and the two latter overland with me.

The boat arrived on the evening of the 11th, having been five days and-a-half coming a distance of about 20 miles as the crow flies; and on the 12th the baggage was moved into an empty shop in the village.

The great amount of impedimenta which it is necessary to take about with one on a collecting expedition, is a most serious drawback, when once the roads are left; but without it nothing can be done, and one might just as well stay at home. The worst part of it is, that the longer the trip lasts the more the baggage increases, instead of decreasing as it does on an ordinary occasion.

Toh BIAS, the Penghulu of Tapa, having a few days before I arrived married a new wife, could not be induced to leave his bride and go to Kuala Woh to look for Sakais to carry up the baggage to Gunong Batu Puteh, till the 12th, and then he went very unwillingly, and it was six days more before they began to arrive at Tapa, and then only ten men came. My brother, Mr. CECIL WRAY, then sent to Chendariang for some, but without success. The difficulty at that time in obtaining Sakais was that they were all felling and burning the jungle to plant rice for the next season's crop.

During this enforced stay at Tapa, we went out every day collecting, and got 32 species of plants, 27 bird skins, and 3 mammals, besides many insects. I also took some photographs of some of the most typical of the Sakais.

On the 25th we were able to leave Tapa. We then had 22 Sakais, and the heavy baggage had to be put into two boats

and poled up the river to Kuala Woh, which place we reached after a walk of two and-a-half hours, the track crossing the Batang Padang River twice. The whole way, wherever there was an opening in the jungle, we met with swarms of yellow butterflies. There must have been millions of them spread over the country. In places they were settled so thickly that the ground could not be seen. Some of these patches were two and three feet in diameter, and after driving away the butterflies the ground was quite yellow from pieces of their wings and dead ones. I have never seen such a sight before, almost any sweep of a butterfly net would catch a dozen or more. In the afternoon it came on to blow, just before a shower of rain, and all the butterflies at once took up positions on the undersides of the leaves of trees and plants and on the lee sides of the stems and roots. They were all of one species of Terias *(Terias hecabe)*, and the Malays said that they had appeared about a week before we saw them. The whole of the next day's march they were quite as numerous, though we rose to an altitude of 1,130 feet above sea level, and they were also fairly common as high as the camp on Gunong Batu Puteh, which we reached on the day after.

Almost the whole of the land passed through, lying between Tapa and Kuala Woh, is of most excellent quality, a great deal of it being covered with bamboo forest. The bamboo seemed to belong to one species only, and is known by the Malay name of *buluh telor*.

The track passes through several Sakai clearings, one of which was in a most creditable state of cultivation. In another there was a typical Sakai house on very tall posts and with a considerable sized raised platform on a level with the *lanti* floor. There were also two Sakai graves near the track. They were raised like the Malay ones, and well taken care of. On them were the remains of fruit, flowers, Indian corn, coco-nut shells, bottle-gourds, roots, &c., which had been placed there probably as offerings to the dead.

One of the boats containing the baggage arrived at Kuala Woh at 5 P. M., having been eight hours on the way, and the other did not arrive till about 6 A. M. on the morning of the 26th, and at 9 A. M. on that day we started up the valley of the

Woh with 21 Sakais as baggage carriers, but as they could take only a small part of it, I was forced to leave a great quantity at Kuala Woh in charge of JELLAH and HARISON.

For the first few miles after leaving Kuala Woh, the jungle is almost exclusively bamboo. This land is undulating and of fine quality, but it ends at Changkat Berchilding, and then the track passes over some considerable hills and down into some valleys of which the soil is apparently good, but the slopes are steep and the Sakais have spoiled large portions of it by making *ladangs*.

It is as well to mention that there is no reason why the track should go over all these hills, except that native tracks always do go over the extreme tops of all hills which are anywhere near the line of route.

We reached the foot of Gunong Batu Putch at 12.50 P. M., and camped for the night on the banks of the Woh. This place is 1,030 feet above sea level. The thermometer showed the following temperatures :—at 3 P. M. 70° F., and at 9 P. M. 72°, and at another visit on August 7th it showed at 2.15 P. M. 78°, at 5 P. M. 72°, and the next morning at 6 A. M. 68°.

At the foot of Batu Puteh, bamboo jungle again appears, and as this is at an elevation of 1,030 feet, it would be most valuable tea land if of sufficient extent, and looked at from the top of the rocky spur on Gunong Batu Puteh it seems to be of considerable area. In fact a track of bamboo jungle appears to run right up the valley of the Woh from its kuala to the camp, and possibly much farther.

At 7.40 A. M. on the 27th we left the camp on the Woh and reached the south-west spur of Gunong Batu Puteh at 12.50 P. M. This spot is 4,300 feet above sea level by aneroid, and is the place on which the previous expedition camped.

Having set all hands to work re-making the old huts, we climbed the rock on the top of the spur, but the driving clouds hid almost everything, and we had several sharp showers of rain while there. There were firs, myrtles and other mountain plants on the top and sides of the rock, and we found a few pretty ground orchids, one in particular with a bunch of large yellow flowers on a stalk two or three feet high, and a

white flowered species which is common on the summit of Gunong Hijau in Larut.

It rained the greater part of the night, and as the hut was not weather-tight we got very wet, cold and miserable. The next morning, the 28th, was cloudy and cold, with frequent showers of rain, so that not much could be done in any direction. Eleven of the Sakais ran away early in the morning, leaving us with only 10 men. Four of these men, and a Malay I engaged at Tapa, were sent down to Kuala Woh to bring up some more baggage and the remaining six with the Malays began putting the house in order and trying to make it waterproof.

I went out into the jungle, but only saw a few birds, which were all of the same species as those I previously collected on the Larut hills. In the afternoon, as it seemed to be clearing up, we ascended the rock again, which by the bye is a very stiff climb, and got a fleeting sight between the masses of drifting cloud of the real top of the mountain, which I estimated to be at least 2,000 feet higher than the top of the rock, which is 400 feet above the camp.

From the rocky point, a splendid view is to be had, comprising almost the whole district of Batang Padang, and further in the distance Lower Perak, the Dindings and the Larut hills, Bujang Malaka and the hills to the north end off Kinta, and the summit of Batu Puteh itself hides the northern continuation of the main range.

Looking down from this rock, there appears to be a nice piece of planting land at about 2,000 or 2,500 feet elevation. It does not seem steep, and there is a fine stream near it. It is situated in the valley formed by the spur on which I then was, on the one side, and the spur extending out in the direction of Gunong Brapit on the other. Most of the higher lands on Batu Puteh are very steep, although of fine quality as far as soil goes.

On the rocks near the summit, a quantity of a plant called *chimbuai* grows. This plant is much valued by the Malays, as it is supposed to act as a love-philter. It probably belongs to the *Ophioglossaceæ*, and is a delicate rush-like plant about three inches high, having its spores in little tassels on the tops of the leaves.

The next day, the 29th, I took a photograph of the camp and Sakais, and took the measures of the latter, and at about noon Mr. C. WRAY and all the Sakais left. The former had gone up with the intention of trying to make the ascent of the real summit of Batu Puteh, but the running away of the Sakais and the bad weather rendered this impossible.

MAHRASIT and the "boy" went on with the house, but as there were only small palm leaves to be had at that elevation, it was not easy to make a weather-tight house, and if it had not been for the waterproof sheets kindly lent by the Commissioner, Perak Sikhs, I do not know how we should have got on, as the preservation of botanical and other specimens would have been almost impossible.

On the 30th six Sakais came up with more things, and on the 1st July, JELLAH, HARISON and 9 Sakais arrived. From this day to the 7th I have nothing particular to record. During that time the remainder of the baggage arrived, and I had drying stages put up for sunning plants, cut a track in a northerly direction across to another ridge, and collected birds, plants and insects. I had one of the Malay ground bird-traps set, first in one place, and then in another, but without any result.

I had hopes that there might have been some representatives of the Indian hill pheasants, partridges and other ground birds on the Perak mountains, but if there are any we failed to catch them. The trap that I used consists of a small hedge made of branches and leaves with openings every few yards. On the ground aross the openings are placed light wicker-work frames, which being trodden on, release bent sticks, which are attached to nooses laid on the frames and which the bent sticks draw up, so as to catch the legs of any birds which may tread on the frames. I also had an English trap, the "Rutland," but it also caught nothing.

I was fortunate enough, on the 6th, to shoot a fine example of the Black Eagle *(Neopus malayensis)* not far from camp.

A pair of them were circling round the tops of some tall trees in the jungle, and I brought down the female. It measured 5 feet 10 inches across the wings, and its plumage was far darker than that of the two specimens I obtained last year on the Larut hills, but it is evidently of the same species. In its

stomach I found two eggs and the half digested remains of a rat. The presence of the eggs shows it to have the same habit of robbing the nests of other birds as its Indian congener.

On the 8th I started at 8 A. M. with MAHRASIT, HARISON and a Sakai along the track to the North, which I have already mentioned, and then struck up the spur until we reached the top of the ridge joining the western peak with the main hill, and then followed that ridge, which runs in an easterly direction up and down hills until we came to the Batu Puteh itself, after which it was nearly all steady up-hill work. We had to cut a track the whole way through a particularly thick and thorny undergrowth, and it was 2 P. M. before we reached the extreme summit, which the aneroid made 6,700 feet above sea level.

I took up my gun in the hopes of getting some new birds, but only saw a few of one species, one specimen of which I shot. It is a *Mesia* of a species I have not seen before. Although I was disappointed in the matter of birds, still had I not taken the gun we should not, on that occasion, have reached the top of the hill, for a tiger had preceded us by a few hours, from the ridge right up to the very summit of the mountain, and as may be imagined, there was not any anxiety amongst my companions to follow up the tracks, and they would most certainly have refused to do so if there had been no fire arms amongst the party, though for that matter, as I had no ball cartridges, it would have been no earthly use, but for obvious reasons I kept this fact to myself. Only two days before a tiger, probably the same one, was seen by HARISON not 200 yards from the camp in the middle of the day.

It seems strange to find tigers in such a place, for there appeared to be absolutely no game, not a single track of a pig, deer or any other animal having been seen by us during our stay on Gunong Batu Puteh.

The forest near the top of the mountain is most curious, consisting of twisted, stunted, wind-blown trees covered all over with a dense shaggy coating of moss, the ground, rocks, roots and dead trees being all hidden in the same manner. The moss is of all tints of greens, greenish-yellow, browns, red-browns and pinks, and is of many kinds. Some of them

being extremely elegant, both in form and colouring. Such a luxuriant and beautiful growth of moss I had never seen before. In the scrub near the summit, *Rhododendrons* of many species are common, one of them growing into quite a large tree, but unfortunately no flowers of this plant could be found. Another species has the petals of the flower yellow and the tube orange-red, another white, and a pretty little round-leaved one has crimson flowers.

An orchid of considerable beauty grows not far from the top, and seems to be a very free flowerer. It is a purplish flowered *Dendrobium*. I also collected some plants of a very pretty *Anæctochilus;* it resembles *A. setaceus* very closely, but the leaves instead of being dark red-brown veined with yellow, are rather pale velvety green, with pure white veining. Unfortunately it was not in flower, so I had to take the plants, which when planted in baskets may, if they live, yield flowers, and the species may ultimately be determined. In all we collected over 50 botanical specimens, and had there been time and some more men to carry them we might have got many more.

It was a beautifully fine day, but the distance, as is so often the case in dry, hot weather, was rather hazy. The view, however, from the summit was splendid, but it is quite impossible to describe it, and owing to want of time, I could not make any sketches. To the East, looking down into Pahang, there is nothing to be seen in the way of mountains, as far as the eye could reach. The country seems to consist of large broad valleys, with a few ranges of small hills. On these hills we could see many Sakai clearings as well as clearings in the valleys, which are probably Malay. The thickness of the range at this point is very little. I should not think it can be more than eight miles. To the South no large hills are visible for many miles, but to the North the hill country expands and broadens out, and peak upon peak can be made out stretching away into the far distance.

Gunong Batu Puteh is, therefore, the end of the range of higher hills going southwards, though the range again rises into some lofty peaks in Slim.

Having collected all the plants we could carry, we returned, reached the camp again at 6 P.M., having been 10 hours on the tramp.

The next day, the 9th, I spent in putting the previous day's collection of plants into paper, and on the 10th I took three photographs from the rocky ridge connecting the spur with the main mountains—one of the rocks which form the top of the spur, one of the summit of Batu Puteh, and one of the hills looking over in the direction of Gunong Bujang Malaka.

The next day I looked over the dried plants and put all those which were dry into Chinese paper, and sent them down to Tapa on the 12th. Up to that time I had collected 241 species of plants and 61 specimens of birds. One serious drawback to the place was the great quantity of blow-flies, which, unless great care was taken, spoiled all the bird-skins, as well as woollen clothes, blankets, food, &c. The strange thing about these flies is the question where they can be bred in the jungle, for, as I have already noticed, there is such a great scarcity of animal life, and consequently there can be but little decomposing matter for them to breed in.

Woollen things are evidently taken by them for the fur of animals, hence dead animals are clearly the natural food of the larvæ of these flies. Last year, near the Resident's Cottage, I shot a *krekah* monkey, and hung it up to a tree till I returned, which was in about one hour's time, when it was flecked all over with white eggs; but the blow-flies are not anything like so numerous on the Larut hills as they are on those of Batang Padang, probably because they are lower. The lowest altitude at which they are met with seem to be 3,600 feet, but they are not abundant till 4,000 feet is reached.

On the 15th I went down the hill (900 feet by aneroid) and fixed on a site for a new camp, and set the men to work felling the jungle. This place seemed to be more frequented by birds than the higher and bleaker camp, which was not at all a good collecting station for birds, and by that time I had about exhausted all the plants that were in fruit or flower near it. A good number of the trees felled were either in fruit or flower and I was able to add them to my collection.

On the top of one tree was a rather pretty *Vanda* with red flowers spotted with a darker shade of the same colour; and on another was a wild raspberry in full fruit. A tree top is certainly one of the last places on which one would have looked for raspberries.

On the 17th sixteen Sakais came up to carry my things down to Tapa, and I arranged with them to get attaps and finish felling the jungle on the new site on the 18th, on the morning of which day I went down with them, and then up again to the camp and from there to the rock on the top of the spur and afterwards to the gorge to the North of the camp to collect orchids and ferns to take down for the Resident. Then packed them up in baskets and also packed up the bird-skins and put the day's collection of botanical specimens in paper, cleaned guns, and made other preparations for leaving on the morrow.

Up to that time 77 birds and 320 species of plants had been collected, and the object of going down to Tapa was to properly dry and pack away this large collection, and free the pressing paper, so as to be able to use it again.

I had been away from Tapa about a month, and I must say it had been anything but a pleasant time; for the hut was of the leakiest, draughtiest and most uncomfortable description for the bleak climate at that altitude, it being made of rattan and small palm leaves—the only material available within a distance of three or four miles. The temperature ranged from 56° to 68° in the house, and the wind, rain and mist drifted right through it.

Most of my party were out of sorts, and I rather hesitated as to leaving, but transport is so difficult to get that I decided to risk it. JELLAH had ague, MAHRASIT nettle-rash and swollen legs and feet, HARISON bad legs, and the "boy" a very much inflamed and swollen eye. I gave a supply of medicine to JELLAH, and the boy and HARISON were doctored at Tapa.

While at the upper camp I had an attack of what is known as hill diarrhœa, a disease often met with at the Himalayan hill stations of Simla and Nynee Tal, but I do not think that it has been recorded in the Malay Peninsula before.

At about 8 A. M. on the 19th I left the camp with HARISON, the "boy" and 18 Sakais, and reached Kuala Woh at 2 P. M. The Sakais were too tired to go on any farther that day, and so I forded the Woh and went with the "boy" only to Breumen, and after much trouble got a boat and reached Tapa at 7 P. M.

The exposures of rock along the banks of the Batang Padang River from Kuala Woh to Tapa are all, as far as I saw, of the ancient stratified series. The beds are much twisted, contorted and upheaved, in places the strata being nearly vertical.

Overlying these rocks are usually thick beds of river sands, similar to that on which the village of Tapa stands. In places these beds rise to 30 feet above the level of the river.

The rock exposures on the Woh are all apparently granitic. The granite there and on Gunong Batu Puteh from base to extreme summit is a coarse grained rock, with large white felspar crystals and largely mixed with dull blue quartz. The sand in the streams derived from this rock is very characteristic, being quite blueish in appearance. The subsoil formed by its decomposition is also much redder than that formed by the granite of the Larut hills. The surface soil both there and in other parts of Perak seems to depend, in a great measure, as regards its vegetable constituents or humus, on the presence or absence of white ants (*termites*). When the height at which these insects cease to thrive is passed on the hills, a very marked difference in the colour and depth of the surface soil is noticeable, and the same thing is to be seen in the low country in swampy land which is unsuited to their existence.

That the soil is really any poorer for its loss of vegetable matter is not at all certain, for the inorganic constituents of the humus are still present, though they have been altered by passing through an animal organism. This may account for the fertility of some of the apparently very poor soils to be seen in some parts of the State.

Nothing particular happened during the walk down from Gunong Batu Puteh beyond the usual experiences of a long jungle tramp, except that near Kuala Woh I saw in the middle of the track just in front of me the head of a black cobra looking out from under a root; a knock on the neck with my walking stick rendering it powerless. I got it out of its hole, and

while the "boy" way looking for a piece of jungle root to carry it by, another smaller one glided out of the same hole, passed me and took to the river before I had time to stop it.

The first one being a fine large specimen and quite uninjured, I took it to Tapa and put it into spirits. These black cobras are fairly common in Batang Padang, but are very scarce in other parts of Perak, so scarce that I had never seen any till I went there.

I have called it a cobra, but it is not quite certain that it is referable to the genus *Naga*. Possibly it may be a black variety of the *Hamadryad*, but if so it must either not attain a large size, or it must quite change its livery as it grows older; for I was informed that it is unknown of a larger size than between 5 and 6 feet.

The next day, the 20th, the Sakais brought on the baggage from Kuala Woh, and I had the plants unpacked and put out into the sun to dry as soon as possible. They seemed in good condition, and there was no sign of their having heated, as half-dried botanical specimens have a very unpleasant way of doing, when packed up for long in this climate. I then went to work on the live plants, which I brought down with me, and by the next day they, together with a quantity more that Mr. C. WRAY had collected, were all planted and packed up and sent down the river in a boat to Telok Anson.

Mr. C. WRAY and I went on the 22nd to see the new mine at Chendariang. We left at between 7 and 8 A. M., and reached Naga Bharu at 11 A. M., and from there went to the Sri Muka mines. There are two very distinct varieties of tin-sand obtained from these mines. The one being black, fine-grained and bright-looking; while the other is reddish, brown, or white and very coarse-grained, varying from pieces the size of the tip of the little finger to masses 100 or so pounds in weight.

I think it may safely be predicted that when *lampan* workings are carried on, on the hills near Sri Muka, that some lodes of considerable size and richness will be discovered; for undoubtedly these large blocks of tin ore must have come from such lodes, and probably at no very great distance from their present resting place. The fine-grained black tin-sand, I imagine, has been derived either from another formation, or,

more probably, it may have been disseminated through the body of the rock, and the pale-coloured coarse-grained sand and blocks of ore from lodes running through the same formation.

I bought one fine large lump of tin ore besides some smaller ones for the Museum, and engaged a Chinese cooly to carry them to Tapa.

The mine which is turning out so well, is that which formerly belonged to the Shanghai Company, and is within a hundred yards of the Manager's old house. We saw a large quantity of tin-sand and also a good many slabs of tin, and we were informed that the owners estimated the sand then raised would yield 70 bharas of tin.

There seems every reason to suppose that there is a very large extent of land equally as good as this piece has turned out to be, and that this valley will take many years to work out, the area being quite as large as the Larut tin mining districts of Tupai, Taiping and Kamunting.

The only drawback to the place is the transport. At the time I was there, the river was so low that boats could not go up it, and the road to Tapa was little more than begun.

In consequence of this, the shops were all shut up, as they had nothing left to sell, and the chief Towkay told us he only had 30 bags of rice left, and that he had 300 coolies to feed, and in a few days if the drought continued he would have to begin carrying rice from Tapa, a distance of between 8 and 9 miles over about as vile a track as can well be imagined. The usual price of rice is from $3\frac{1}{2}$ to 4 *gantangs* per dollar, but at the time I am speaking of, it was not to be had cheaper than 3 *gantangs*.

The opening up of this district depends entirely on the completion of the cart-road from Tapa, for at all times the Chendariang River is very difficult to navigate, and in times of drought it is shut up altogether. It usually takes a cargo boat 20 days to go from Telok Anson to Chendariang, a distance by road (when made) of only twenty-nine miles. The high price of provisions, consequent on this expensive transport, is a serious tax on the miners, and it speaks a great deal for the extreme richness of the land, that any mining can be carried

on with profit. Though at the same time it is evident that only the best of the land can be now worked, and that therefore the State is the loser of a great deal of revenue, as land which has had all the best parts of it worked out will not pay to re-open and will probably be unworked for many years to come.

With the exception of the first two miles, which has in great part a laterite subsoil, lithologically identical with the exposure on the road to Kamunting near Drummond's house, the land the whole way along the track from Tapa to Chendariang is of splendid quality and admirably suited for any low country cultivation. A great part of this land is covered with forest *(rimba)*, and only a small part with *bluka*. The Chendariang valley above Naga Bharu is well suited to wet padi cultivation, and there are now in existence some considerable *bendangs,* which as there is an abundant supply of water and level land, may be enlarged to a great extent without much trouble.

Before leaving the mines, I looked over the heaps of mining metal, and found a few interesting mineralogical specimens, and on returning collected a good many botanical specimens. At one place along the road the telegraph line was hanging near the ground and touching a small sapling and at about 60 feet distance it was attached to an insulator fastened to the trunk of a tree. Running up the sapling and along the wire to the distant tree, were hundreds of red-ants *(keringa)* carrying green caterpillars each about one inch long; six or eight ants to one caterpillar. The caterpillars were very numerous, and all of one species.

On the 23rd I was all day shifting plants that were dry into Chinese paper and tying them up ready to pack up in boxes.

I did not collect any more plants, as my object was to get as large a stock of empty paper to take up the hill again as possible, because the hill plants are more likely to be unknown than those of the plains.

From this date to the 2nd of August, I continued drying botanical specimens and transferring them into Chinese paper when dry enough, and dried and packed up the bird-skins.

On the 3rd August I sent off the baggage up the river from Tapa in a boat, and then followed overland to Kuala Woh. On the road near Breumen I collected flowering specimens of the bamboo which forms the greater part of the bamboo forests. It goes by the native name of *buluh telor*, and has a stem usually striped with pale greenish white of 2½ inches or so in diameter, and forty to sixty feet long.

I reached Woh at about 4 P.M., and the boat half-an-hour afterwards. On arrival I was greatly disappointed to find that though Toh BIAS had assured me there were Sakais at Kuala Woh awaiting me, not one man was to be found. I was told that Toh BIAS had neither been there himself to collect them, nor had he sent any one else to do so. It was not till Sunday, the 7th, that enough Sakais were got together to carry up the baggage. During these three days I collected plants and visited some of the Sakai *ladangs* near Woh.

The parcelling out of the baggage to the Sakais is always a work of time. They all, of course, look out for the lightest packages, and you find them going off and leaving a good half of it behind. Then comes a re-arrangement and perhaps a second and even a third before it is equally divided, but afterwards there is no more trouble, each man keeping to his own load. I had one little box of shot which took some of the men in in a most ridiculous manner. They all thought it a charming little package until they came to try its weight. At 9.45 on the morning of the 7th, having distributed the baggage, we left Kuala Woh and reached the camp at Ulu Woh at 12.30 P.M., and on the following morning at 7.30 A.M. started again and passed the new camp on Batu Puteh at 10 A.M., and reached the higher one at noon.

On the morning of the 9th we found that eleven of the fifteen Sakais had left during the night, so that we only had four left to help carrying the baggage up to the top of the hill. We left the camp at 8 A.M., and halted at noon at a cave I had noticed on my first visit, and which seemed likely to form a shelter from the rain. It was not exactly a cave, but a cavity formed by one huge rock lying on and supported on either side by two other masses of rock. The space beneath it was about 30 feet long by 10 feet wide, and from

5 feet high on one side to about one foot on the other. Having set the men to work to cut wood to make a *lanti* floor and a wall of sticks and leaves to keep out some of the wind, we went on up to the summit, but it was so thick and cloudy that nothing could be seen. However, we collected a quantity of plants and returned to the cave at a quarter past three and shortly afterwards it began to rain, and continued raining nearly the whole of the time we were up there.

I have before mentioned that the fresh tracks of a tiger were seen on the first ascent of this hill and on the second they were again seen. In fact the tiger had been right through the cave in which we camped. The presence of fresh marks on two occasions with an interval of a month between them seems to show that the higher hills of Perak are regularly inhabited by tigers. I have previously often seen tracks on the Larut hills, but then they are more than two thousand feet lower. The last time I was at the Resident's Cottage I noticed that the same habit which is common amongst domestic cats, of eating grass as an emetic, is also in vogue amongst the larger felidæ; but as grass was not at hand, rattan leaves had been eaten instead, and apparently with equally satisfactory results as regards the patient.

A fact which does not seem to be in conformity with the generally received ideas of the habits of the gibbons, is that on both of my ascents of the summit of Gunong Batu Puteh I heard the cries of *siamangs* at between 6 and 7,000 feet altitude. One would have thought that the climate was too cold and bleak for such delicate animals, but it appears that they can and do voluntarily stand a considerable degree of cold without any inconvenience. It is, therefore, probable that want of exercise and proper food has been the real difficulty in the way of sending them to Europe, and not the climate.

At the higher camp they were to be heard nearly every day, and on one occasion they were making a great noise in the middle of the night, which, by the bye, was a moonless one. On the other hand the whole time I afterwards stayed at the lower camp I never heard them once.

In the evening the wind rose and howled through the cave, making us all shiver again with the cold.

The Sakais made a large fire in the end of the cave opposite to that from which the wind came, and they and the Kling sat shivering and groaning round it all night and the rest of us had very little sleep, for besides the cold and wet, the *lanti* floor was slanting and made of the most crooked, windblown and uncomfortable pieces of wood that could be well imagined.

When it began to get light on the morning of the 10th the wind and mist were still drifting through the cave, everything inside it was glistening with dew-like drops of water, and the rain was still falling outside. Then that most trying of all trying jungle operations had to be gone through—that is, getting out of bed and into one's cold sopping wet clothes of the day before.

At about 8 A. M. we again went to the summit and stayed there about an hour and-a-half, but instead of clearing, the fog got thicker and the rain heavier and so we returned to the cave and packed up the plants and the other things and then as the rice was all finished proceeded down the hill to the camp, the rain continuing heavily the whole way.

The summit, looked at from Tapa, gives the impression that it is rounded in outline and of considerable area, but in reality it is a sharp, thin ridge running in a N. N. E. & S. S. Westerly direction and if viewed from either of these directions it would probably present a pointed, conical appearance.

The following temperatures were taken at the cave:—12.30 P. M. 58°, 3.15 P. M. 57°, 6 P. M. 56°, 7 A. M. 55°, 9.30 A. M. 56°. I am sorry I had no minimum thermometer with me, as it must have gone down in the night several degrees lower than the reading here recorded. I should think that on the grass on the summit, during clear, calm, starlight nights, the freezing point must sometimes be reached.

On our arrival at the camp we found letters containing the sad news of Mr. EVANS' death from cholera at Tapa on the 7th and in consequence Mr. C. WRAY, who had joined me at Kuala Woh on the 6th and made the ascent of Batu Puteh in the hopes of getting a view, went straight on down the hill to the camp on the Woh. Mr. EVANS arrived in Tapa on the day I left, and I saw him for a few minutes at the Rest House. Almost all those who have been engaged in the work I have been

doing, have died within the last nine months. That is, Messrs. SCORTECHINI, KUNSTLER, CAMERON, and now Mr. EVANS.

I found when I came to put the collection of plants into paper, that they numbered 34 species, so that although owing to the state of the weather we were not able to make any topographical notes, the number of plants compensated, in a measure, for the discomforts of the trip.

In the evening HARISON was taken ill with diarrhœa, and was writhing and groaning with violent pains in the stomach, which we thought might be the beginning of an attack of cholera, but it fortunately passed off after one dose of chlorodyne and brandy, which quieted him and sent him off to sleep.

Six Sakais had come up in the afternoon with the remainder of the things, which they left at the lower camp, and on the 11th they carried down the baggage from the upper camp, and we all moved down in the afternoon. Unfortunately JELLAH had an attack of fever, and MAHRASIT was laid up with swollen feet and legs, thus reducing the workers by two. Quite close to the house was a tall tree which had been partly cut through, but had not fallen, so I got the Sakais to go on cutting it, as the cut had been begun so high up the stem that my remaining Malay would not attempt it, for it required the agility of a monkey to climb down from the stage to get clear of the tree when falling. The wood was very tough and hard and it was not till about 8 o'clock that it came crashing down. For about an hour or so the Sakais had to work by the light of *dammars*. Next morning (12th) I found it was a species of oak, and obtained fruiting specimens of it and of three other trees knocked down by it. I also collected 21 other species of plants, and caught a butterfly, a new species of the genus *Loxura*, besides several other insects. That rare and beautiful butterfly *Clerome fannula* seemed to be quite common, and also a *Delias* nearly allied to *D. parthenope*. The latter extends up to the summit and was the only butterfly I noticed there. *Clerome fannula* I find to be a very variable species, the variation being present in both sexes. The extremes of variation I took at first to be distinct species, but a larger series of specimens showed that there were intermediate, connecting links, joining the two.

I found that a considerable portion of the flora of the higher mountains was continued down to quite moderate altitudes, but whereas on the summits of the hills it grows in the ground, lower down it grows on the tops of tall trees. In felling the jungle for the lower camp many rhododendrons, nepenthes, myrtles and other plants which occur on the extreme summits of the hills were found. This seems to show that temperature is not so essential to their growth as free exposure to the sunlight and air, and that epiphytism may be only an acquired habit in many and perhaps in all plants.

On the 13th and 14th the house and drying stages for sunning the botanical specimens were finished, and collecting was carried on. I obtained a snake that I have not seen before, in the attaps of the house, with a sharp dorsal ridge and light red eyes; also a tree frog of the same species as the one I collected on the Larut hills last year *(Phrynella pulchra, Blgr.)*. These little creatures live in holes in trees, and at night make the whole jungle of the hills resound with their pretty flute-like notes. They are in appearance something like little brown bladders with four legs, the head forming only a slight projection between the front legs. They are very difficult to collect, as they refuse to quit their holes, which by the way are usually high up in the trees, and it was not till I hit on a method of expelling them that I was certain as to what produced the nightly chorus of musical notes. This method is to climb up the tree and fill the hole with water, then drop in some salt. In a minute or two out hops the little frog, and if it is well washed in fresh water it is none the worse for its saline bath, as I have proved by keeping several of them alive for some weeks afterwards to watch their habits. At the higher camp on Batu Puteh they are very scarce, apparently it is the top of the zone inhabited by them and the bottom seems to be reached at a little below 3,000 feet, so that it may be said that their range is from slightly below 3,000 feet to a little above 4,000 feet. Higher up the hills their place is taken by a species with a loud, deep, low-pitched booming but musical note, and lower down by a species with a note resembling that of the common crow, repeated twice. The lower limits of this

species I have not ascertained but I cannot recall hearing it below 2,000 feet. These heights hold good both here and on the Larut Hills, and, therefore, I presume generally in this part of the Peninsula, and as these zones seem to be much more constant than those formed by various plants, in the absence of an aneroid, the "frog barometer" may be very advantageously employed in the rough estimation of altitudes.

I captured an extremely beautiful leaf-like grasshopper. It was pale emerald green with claret edging to the wings and claret legs and cheeks. On the body and wings were rows of dark centred blue spots and the feet were bright yellow. It measured 4½ inches in length and had black and white banded antennæ, 8 inches long. It was one of the most elegantly coloured insects that could be imagined, but the colouring is almost certain to fade in drying, as it unfortunately nearly always does in this class of insect.

I caught a specimen of a rare *Mycalesis* and a very handsome *Elymnias;* an almost perfect mimic of the common *Euplœa midamus.* I watched it for some time flying about, but fancying it a common insect left it alone. Afterwards when it was settled I examined it more closely thinking it might be the rarer *E. mulciber* which is distinguished by having no marginal row of white spots on the posterior wings, but the row of spots was there; then I noticed that the margins of these wings were serrated, which being a character absent in the *Daniœdæ*, I at once caught it and found it to be an *Elymnias.* Two other rare butterflies were also obtained, a *Stiboges nymphidia* and a species of the genus *Prioneris.* The latter being almost certainly a new insect.

From the 15th to the 22nd we continued collecting as well as possible, but owing to the rain we could not go out much, and the rain also caused much trouble in our attempts to dry the botanical specimens. All hands being continually at work putting them out in the sun and bringing them in again to escape the frequent showers of rain.

Amongst other plants that were collected during this time was a singular anonaceous, tree, which had long, flexible, leafless branches on the lower part of the stem.

These branches reached down to the earth and, for a great part of their length, were buried and out of sight, but the extreme ends stood up nearly vertically from the ground at perhaps 6 or 7 feet from the tree and bore pretty sweet scented, cream coloured flowers and bunches of dark velvety brown coloured fruit. The object of such an arrangement and the causes which have led to it form a scientific puzzle well worthy of solution.

On the 21st I went up to the higher camp, and from there to the rock on the top of the spur, and found a very handsome *Rhododendron* in flower; it was quite a small bush and was growing on a piece of moss-covered rock. The flowers, which were nearly two inches across, were borne in large bunches and were of a colour resembling the yellow *Allamanda* commonly grown in the gardens in the Straits. I brought down the root and planted it in a basket and I also brought down young plants of 5 or 6 other species, some of which I had previously planted in baskets while living at the higher camp. Near the place where the *Rhododendron* was growing were three roots of a large and pretty fern, the fronds were about sixteen feet long and the stem was covered with a blueish bloom. The spores were contained in small oval capsules, which opened by a single slit along their greater diameter. These were the only three plants of this beautiful fern I had then seen, though on the hills near Ulu Batang Padang I afterwards saw others. On the way down while going after a monkey I came upon a large fir tree of a different species to that which is so common on the summit. It had light, graceful, feathery branches and the leaves were extremely minute. In appearance it is much like the *Casuarina* that is so much grown in Penang. Unfortunately it was not in fruit, nor did a prolonged search beneath it reward us with any old cones.

I had the bird trap set again, but without success. Among other birds shot during this time was a large and handsome red-headed trogon. This may be *Harpactes erythrocephalus*, Gould., which is recorded from the hills of Eastern Bengal, the Himalayas and the hills of Tenasserim, but has not been met with in the Malay Peninsula as yet. Another was a broad-bill, closely allied to, but apparently distinct from, *Corydon*

sumatranus, Kaffl., also a blue-backed flycatcher, a red and a green-backed, yellow-crested woodpecker. Most of these will, I hope, turn out to be either new or at least new to the Peninsula. I also succeeded in catching two more of the little tree frogs I have already mentioned, and three of a much larger frog which, however, has nearly the same habits and vocal powers. It is of a very rugged appearance and of a chocolate colour with cherry red hands and feet and beneath it is mottled with black and white.

It has been identified provisionally by Dr. A. GÜNTHER as *Polypedates leprosus.* When on the trunk of a tree it is quite invisible, from its exact resemblance both in colour and texture to a piece of reddish brown bark, and is a very good example of mimicry of an inanimate object. This frog was spawning, and last year near the Resident's Cottage on the Larut Hills, in the month of September, I found a quantity of its tadpoles. The spawn is a jelly-like mass deposited just above the water line on the wooden sides of the hole.

There is on Batu Puteh a rather pretty snail. The shell is light brown with a white stripe running round it, bordered on each side by a band of green. It appears to belong to the *Helicidæ* and in a full grown specimen, measures nearly 2 inches in diameter. It is evidently nearly allied to the large *Helix* which occurs on the higher parts of the Larut Hills. Near the extreme summit of Batu Puteh I found a snail of a species I have not seen before.

At this time I suffered a good deal from the bites of a minute mite, probably a *Tetranychus,* which produced inflamed lumps all over me, each lump lasting for several days and itching and smarting intolerably, particularly at nights. This insect has much the same effect as the well known English "harvest bug" which is also a *Tetranychus.* Ticks of both the large and small variety were unpleasantly abundant in the jungle near the camp, but fortunately leeches were seldom met with.

On the 22nd in climbing up out of a steep rocky ravine, with a gun in one hand and some fungi I had just been collecting in the other, I slipped and fell, giving my back a strain which kept me in for the next two days and hurt more or less for over a month afterwards.

The 23rd and 24th were both very wet days, and on the latter it hardly stopped raining at all, so that not much could be done ; but I had some trees cut down to get a specimen of the gigantic rattan known by the Malay name of *rotan kumbah*.

It was about 200 feet in length and at the thickest part of the cane, which is near the top it measured 5 inches in diameter. Near the root, however, the cane only measured $\frac{3}{4}$ of an inch. The leaves were 24 feet in length and armed with most formidable hooked thorns. The fruit is borne on the terminal shoot and forms a tassell-shaped bunch some 8 or 10 feet in length. From what I have seen of this rattan I believe it only fruits once and then dies. Four of the trees that were felled were either in fruit or flower so that the work was not thrown away. We also collected a rather handsome bird, with a bright orange-vermilion bill. It appears to be a species of the genus *Rhinocichla*. In the evening of the 24th we got a second specimen of the large red-headed trogon.

The weather from the 25th to the 31st continued very wet and cold, with the exception of one day, the 26th ; on the preceding evening the thermometer went down to 62° in the house at about 8 P. M., the coldest I saw at the lower camp. The highest temperature I noticed while there was 78°. The climate, therefore, corresponds very closely with that of Maxwell's Hill in Larut.

I had a great many trees felled during this period and preserved specimens of all that were either in fruit or flower. By this means I secured specimens of some of the larger trees, which, of course, it is hopeless to get in any other way. Had I had a telescope or a binocular this work would have been much easier. As it was many of the trees when felled were found to have neither fruit nor flower. However on some of these I found epiphytes, parasites and creepers of interest. Among the parasites were two plants closely allied to the English mistletoe, one being an almost exact resemblance of it but slightly smaller, the other had rather rounder leaves.

In the jungle near the camp I found a fine fir tree. It was fully one hundred feet in height and had a trunk of between 4 and 5 feet in diameter. From what I could see of it I fancy it is a different variety to that I mentioned a short time ago, but

again a careful search under it gave no results in the shape of cones.

I found 4 or 5 species of *Burmanniaceæ* on Batu Puteh, at different elevations. They are small, mostly leafless plants, often parasitical on the roots of other plants. *Burmannia longifolia* is very plentiful with pretty pale bluish flowers. This species is also found on the mountains of Borneo, Amboina, New Guinea and on Mount Ophir in Malacca. The other species are very much smaller and require diligent searching amongst the dead leaves before they are discoverable. The flower of one was primrose yellow, another dull crimson, one purple and another pale straw colour. All these latter are delicate, fragile, semitransparent little plants.

On the 27th I sent down two men loaded with bundles of dried plants and I sent letters asking for coolies to take all the baggage down to Tapa on the 3rd or 4th of September. By which time I considered we ought to have about exhausted the place. Early on the mornings of the 26th and 27th a tiger was heard quite close to the camp making that peculiar noise which cannot be properly described as growling. I must say it would have been far pleasanter if the tigers had not kept hanging round our camps in the way they did.

Some way below the camp I caught three specimens of a very handsome butterfly. It was a species of the genus *Thaumantis*. Above, it is various shades of rich brown with a diagonal band of azure blue on each fore wing. This lovely insect only frequents the forest of the higher hills as far as my observation goes, and like all the members of the genus is very difficult to catch, because the undersides of the wings are, although when examined closely of singular beauty, still when seen from a little distance so like the tints of a dead leaf that it is usually not seen till with a flash of brilliant blue light it flies off perhaps from almost under your feet. There is no doubt that insects are well aware of the colour on which they will be least exposed to the observation and attacks of enemies. This *Thaumantis* always settles on dead leaves or in a position when it may be mistaken for one. There is a moth, very common in the jungle near the lower camp on Batu Puteh, which is of a pale fawn colour and it is perfectly astonishing

how it always alights on a leaf of its exact shade of colour. Although so plentiful I had great difficulty in capturing a few specimens from this habit of rendering itself invisible.

On the 1st and 2nd of September tree felling was continued, and I obtained 41 varieties of plants, a considerable portion of them being large trees. Growing as a creeper on one of the trees was a very pretty fruited *Chilocarpus*. The fruit of which was of a bright orange colour. The effect of the brilliantly coloured fruit amongst the shiny dark green foliage was very striking, and was increased by the yellow flowers and bright red terminal buds to the shoots. These terminal buds are very curious. The colour is caused by the buds being encased in a semitransparent cap of bright red resin. These caps may be detached and are found to be slightly flexible, but at the same time so brittle as to be easily crushed up into powder. They take the form, in a great measure, of the enclosed buds, which the flexibility of the material under continued pressure renders possible.

A plant which deserves to be grown is a small tree with large velvety green leaves, bright crimson beneath. I saw one tree here and several more afterwards in the valley of the Telum. The flowers though inconspicuous are very sweet scented, smelling like sandal-wood. This tree if it would grow in the lowlands would be a great addition to the ornamental trees now grown in the Straits and though more brilliant, would have much the same effect as the copper-beach has in a group of ornamental trees in an English garden.

Of other plants that I met with on Batu Puteh which would repay cultivation I may mention six or seven species of *Didymocarpus* and allied genera, with flowers ranging in colour from white to primrose yellow, and from that to shades of violet and deep claret. Some of the leaves being also very ornamental, both in colour and form. The various species of *Æschynanthus* with their rich red flowers and almost equally beautiful bell-like calyxes deserve far more attention than they receive in the Straits; and some of the *Sonerilas* with quaintly white spotted leaves, from the lower hills, are also worth cultivation.

Of birds we got a specimen of a fine large green woodpecker and another woodpecker of large size that I have not seen before, a handsome-plumaged, yellow-breasted trogon *(Harpactes oreskios)* and a species I do not know, besides three specimens of the pretty little yellow-crested sultan tit. This bird does not seem to differ from that met with in the low country. While hunting in the undergrowth for one of these birds I was stung on the face and hand by one of those handsomely coloured hairy caterpillars. The effect is like receiving several stings from a wasp, and for a few hours is extremely painful. The stinging is apparently produced in the same way as in the common stinging nettle, that is to say, the hairs are hollow and have near their bases enlargements containing a poisonous fluid which is expelled from the points, when the hairs enter the flesh. Other caterpillars have stinging powers, but then the irritation is mechanical and is produced by the hair being barbed and breaking off into the flesh. The large scarlet caterpillar met with in the jungle of the low country and much dreaded by the natives is of this latter class. The Malayan stinging nettle known as *jelatang*, I have examined under the microscope, and it stings in the same way as its English representative.

While writing this I was interrupted by JELLAH, who had just found a large dark metallic green scorpion *(Buthus spiniger)* in his bed. A chase ensued with the aid of lanterns, but the disagreeable bed fellow escaped through the *lanti* floor of the house.

On the third we got one new bird, and on the fourth I shot two small brown barbets which I have not seen up so high on the hills before. On the 5th another new bird was shot besides a male yellow trogon and several others.

Some more trees were felled, among them being a fine oak with very large acorns. I shot down a specimen of the fir tree I have previously mentioned and found it to be, as I thought, another species. There are, therefore, three species on Batu Puteh and a fourth on the Larut Hills *(Dammara alba)*, but this latter has large broad leaves unlike those on the main range.

Seven Sakais from Cheroh came up to carry down baggage, so I packed up things that were not wanted, as it seemed un-

certain when the remainder of the men were coming up. In the afternoon I measured them and tested their eyesight. I have now tested the sight of between thirty and forty of both sexes, and there seems to be no doubt that they have very good sight as a race. Of those tested in Batang Padang, the shortest distance that the Army test spots could be seen was 32 feet, and the longest 91 feet. In testing recruits for the British Army 20 feet is considered an average distance for these spots to be read, and a man reading at over that distance is classed as long-sighted, and under as short-sighted. In measuring the women there was great difficulty, as they did not know Malay and could not count. This same difficulty has been met with by observers of other savages, but I got over it by giving the subject a handful of matches and explaining by signs that I wanted a match for each spot on the card held up.

Early on the 5th these Sakais went down the hill and reached Tapa on the next evening.

All the botanical pressing paper was finished by this time, so I had to stop collecting plants.

On the evening of the 6th I shot a very handsome bird, with a snow white head, yellow breast and brown back, wings and tail, the latter being white tipped. The eyes were bright yellow and the bill pale flesh colour. It appears to be closely allied to the white-headed shrike-thrush of Burma and the mountains of India (*Gampsorhynchus rufulus, Bl.*). This bird gave us a great deal of trouble, for every night and early each morning a small party of them used to pass the camp, sometimes on one side and sometimes on the other. They made a loud, shrill noise something like the *krekah* monkey, and flew quickly from tree to tree. Day after day we went out into the jungle to watch for them, but as there was no certainty which side of the camp they would take, and as they always passed when it was so dark in the forest that neither they nor the sight of the gun could be distinguished, we were never successful until this night in shooting one, although we fired at them on five different occasions. The strange thing was that we never saw these birds in the day time. They passed up the hill to roost at nightfall and down again the

first thing in the morning. Their note is so loud and distinctive and they are so noisy that they could not be mistaken for any other bird, or overlooked.

From the 7th to the 10th we continued collecting, but got nothing of special interest. I had some trees felled so as to get a view of two fine *dudok* palms, and then took a photograph of them and afterwards had one cut down to get specimens as it happened to be in flower.

On the 7th and 8th I saw the fresh marks of a bear on the trunks of two trees, one above the camp and one below. These are the only animal marks, excepting those of tigers, which I saw on Batu Puteh.

At about 10 A. M. on the 10th some Sakais and Malays began to arrive, and so we all set to work packing up the collections and other things, and at 7.30 on the 11th we started for Tapa. On the way I stopped at the camp on the banks of the Woh at the foot of the hill and took a photograph looking down the stream, with some Sakais crossing the tree trunk which forms a natural bridge over the river at this point. I reached Kuala Woh at about 1 P. M., but the men with the baggage did not begin to arrive till about 4 P. M., and it was not till nearly 5 that I set off down the river in the smaller of the two boats, a dug-out, which had been sent to meet us, with MAHRASIT, my Malay boy and a Sakai to pole. I was just preparing to have something to eat when the boat shot down a small rapid, then across a pool so deep that the poles could not touch the bottom and alter her course and the next instant she ran on to a rock and turned right over and we and all the baggage went floating down the stream. I made for the photographic apparatus and shouted to one of the men to catch the gun cases as being the most valuable things. After a delay of about half-an-hour, occupied in collecting the various floating things, catching, turning over and bailing out the canoe we made a fresh start, and, with the exception of grounding several times, reached Tapa without further mishap at about 7 P. M. The river the whole way is a succession of small rapids with here and there deep pools. I heard that the place where our canoe capsized has been the scene of many a similar misfortune.

The next day, the 12th, the rest of my party and the remain-

der of the baggage arrived, and I was busy in cleaning and drying the photographic instruments, guns and other things which had been wetted in the river, and in the evening, when I opened the dark slides I was sorry to find that the water had got into them all and spoiled the plates.

On the 13th I had a quantity of Chinese paper cut to size and began shifting dried plants from the pressing paper into it, and early the next day, the 14th, some men were sent with my boy to dive for the things which had been lost when the dug-out upset. They recovered some of them, but a good many still remained at the bottom of the river, though, fortunately, they were of no great value.

Shortly after seven the same morning, I accompanied Mr. STALLARD and my brother to the valley of the Sungei Klian Mas. We struck the stream near its junction with the Batang Padang River and waded up it for three or four miles. We made several trials of the earth forming the banks, and in nearly all obtained good shows of not only tin-sand but also of gold. Some fifteen years ago or so there was a Malay *kampong* on the banks of this stream, and the inhabitants subsisted principally by mining, but as they refused to pay blackmail to Sheik MAHOMED of Lower Perak, he came up with some fighting men, and burned the houses down and drove away the inhabitants.

We saw many of the old workings in our progress up the river, which we followed to near its source, and then ascended a low range of hills which forms the watershed between the streams flowing into the Batang Padang above the River Tapa and the streams flowing into the Bidor River. We then followed along on the top of this ridge until we came to another river, and from there we went to a place on a tributary of it called the Sungei Chuchu, where some Malays were going to begin mining. We washed some of the earth of the banks of the stream, and obtained samples of very good coarse grained tin-sand containing gold. The tin was found to occur from the surface of the ground down to the bed rock, which, both here and in the valley of the Sungei Klian Mas, consists of beds of slates and clay slates with frequent veins of quartz intersecting them. No trace of granite is to be found

either on the range of low hills from which these streams take their rise or in beds of the streams themselves, so that it seems clear that the minerals found in the "wash" in these valleys must have been derived from these stratified formations. The more I see of this district, the more I feel convinced that all the gold has come from these rocks and that if any auriferous lodes are hereafter discovered, they will be found intersecting these ancient stratified beds. I have seen specimens from the gold mining district of Patani, which could not be differentiated from the rocks of the gold mining districts of Batang Padang, and I have no doubt that the same formations will be found in the Pahang gold fields as well.

The grains of gold are not much waterworn, and some of them have adherent fragments of quartz. The tin-sand is coarse grained, blackish, dull and considerably rounded, and would give from 65 to 70 per cent. of metallic tin, according to to the care taken in cleaning the sample.

After having well examined the wash and also the bed rock and its contained veins of quartz, and obtaining sufficient tin-sand to make a good sample, we returned to Tapa, reaching that town in one and three-quarter hours. The track is extremely crooked and much longer than there is any necessity for it to be, and I do not think that this newly found tin and gold land can be more than 3 or 4 miles from Tapa.

There seems to be every reason to suppose that on both sides of the Batang Padang, between Tapa and Kuala Woh, auriferous tin mining land will be found to extend, for, as I have already mentioned, the geological exposures along the river between these two places are all of one formation and of that formation from which it may be with certainty said that the gold, at least, has been derived.

Some time ago I made a series of experiments on some quartz specimens from Klian Mas, and in every case, except one, gold was obtained, though in unremunerative quantities (one to two pennyweights per ton).

From the 16th September to the 4th of October, I remained at Tapa and, as many trees and plants were in flower, did a large amount of botanical collecting. I also looked over and

dried all the collections from the hills and packed them up, and made preparations for the trip to Ulu Batang Padang and Gunong Brumbum.

JELLAH had an attack of ague and then dysentery and was unfit for work most of the time, so that not many birds or animals were collected. MAHRASIT was also in the hands of the Apothecary most of the time, and MAHMOT was so ill with fever that I paid him off and engaged another man in his place. I paid another visit to Chendariang and also to Klian Mas and Sungei Chuchu, to which a new track had been traced, suitable for a cart-road, and was found to measure only two and-a-half miles from Tapa.

On the 5th October we left Tapa and proceeded to Kuala Woh and put up for the night in an empty house at that place, and at 8.15 A. M. on the morning of the 6th continued our way up the valley of the Batang Padang. The party consisted of 60 in all and even then we had to leave a quantity of rice and other things at Kuala Woh for want of transport. The difficulty on these expeditions is that the rice, fish and other necessaries for the transport coolies, employ more than half of their number and so leave only a few men available for the baggage of the rest of the party.

Both branches of the river having risen about 4 feet during the heavy rain of the preceding night, the Batang Padang was not fordable, and so we all had to cross it in boats, which was safely accomplished with the exception that one Sakai with his load tumbled head over heels into the river. There was great excitement amongst our Malays, as it was thought that his load consisted of the salt and sugar, but an investigation showed it to be only rice.

We then followed a N. E. and subsequently a N. W. course keeping close to the river all the way. The river is practicable for boats only for about half a mile above Kuala Woh, beyond that there are many small waterfalls and boiling rapids through which no boat could pass. At Lubo Tiang, where we camped for the night, the angle at which a long reach of the river is falling is 1.10′ or about 1 in 45.

After leaving Kuala Woh we passed over many exposures of stratified rocks and it was only in the latter part of the

day's march that we met with granite, and then only in patches. The granite is very like that of the Larut hills and quite distinct from that of Gunong Batu Puteh and the Woh valley, but there are in the river rolled pieces of granite with the bluish quartz in them. These are probably derived from tributaries flowing into the river from the South-East, which have their sources near Batu Puteh and Brapit. At the camp we made a washing of some of the surface soil, and got a very fair show of tin-sand.

On the 7th, we reached Rantau Tipus and camped on the banks of the river after a six hours' march. The height of this place was 1,520 feet above sea level.

During the day we saw a quantity of that most graceful of all bamboos, known by the native name of *buluh arker,* as well as an abundance of *buluh telor*, and several clumps of *buluh bersumpit*. This latter is the bamboo which is used by the Sakais to make the long straight tubes of their national weapon—the blow-pipe. During the latter part of the day we came on the gigantic bamboo, *buluh betom*, with stems six to eight inches in diameter and sixty to eighty feet high.

The young shoots of this plant are edible, but not very nice to an European palate, though both the Malays and Sakais greedily devoured them, cooked and uncooked. Many of our Sakais made boxes of these bamboos and crammed into them all their clothes, and thenceforth appeared clad only in a two-inch wide strip of bark cloth.

The next day's march (the 8th) took us to the Kuala of the Sengum, where we camped. With the exception of a few patches of stratified rock, all that we passed over during the previous day's march was granitic, and granite again was the most plentiful rock met with between Rantau Tipus and Kuala Sengum, with here and there a patch of gneiss. Several large quartz lodes were seen, but they contained no indications of being metalliferous. One washing was made during the day in a ravine, and a fair show of tin-sand obtained.

A great part of the track lay in the bed of the river, and wading through the cold water, and climbing over the slippery stones and rocks was anything but pleasant when continued for hours at a time.

The flora of this part of the valley of the Batang Padang seems very different to anything I have yet seen on the hills of Perak. The height of this part of the valley is about 2,000 feet. One noticeable plant was a very handsome member of the *Melastomaceæ* with large bunches of coral pink flowers, succeeded by equally handsome bunches of bright red or purple fruits. I collected 30 plants during the day, and could have got many more, but considerations of transport and preservation deterred me. In an evil moment we were induced by assurances and example of some of the Sakais to eat some pretty apple-like fruit with which a tree, growing by the side of the river, was laden. The fruit, though pleasant at first, left a very disagreeable aftertaste, and we suffered for the remainder of the day with sore mouths and lips. It was a species of the genus *Garcinia*, of which the *buah gluga* is a well-known and closely allied example.

On the 9th we did not break up the camp, as we had decided to await the arrival of KALANA and the Sakais with him.

I sent JELLAH out shooting, and then we went up Gunong Chunam Prah, and reached a height of 3,350 feet. I saw a considerable number of new plants, and collected 18 species—some horse tails *(Equisetum)* an *Arundina (A. bambusifolia)* (?), a large cream-coloured *Dendrobium*, &c. I then saw for the first time a blackberry, which grows amongst the *bluka* on the old Sakai *ladangs*. The berry is red and long and has something of the same flavour as its English ally. The leaf and method of growth is also very similar. Raspberries were also common in the same situations, but the fruit was small and nearly tasteless. Fan palms of a size exceeding a coco-nut tree were very plentiful, and formed quite a feature in the jungle of the surrounding hills and valleys. The leaves are used by the Sakais to thatch their houses, and, owing to the extreme hardness of the stems, they are not in the habit of cutting the palms down when felling the jungle for their *ladangs*, which probably accounts for their great abundance.

A great part of the tops of the ridges running up to G. Chunam Prah are bare of trees and covered with ferns, grass and the handsome *Arundina* I have already mentioned.

On returning to the camp I found that JELLAH had not seen

any new birds, and all those I had seen during the day were of the same species as those we had previously collected on Gunong Batu Puteh. Later on in the afternoon, KALANA and 14 Sakais arrived with more rice and stores.

Early on the morning of the 10th we sent back KAREM and 16 Sakais to Kuala Woh to bring on more baggage and stores, and then started on again up the river. MAHROPE having a bad foot we had to leave him and a Kling, who came up with KALANA the day before at Kuala Sengum, until he was well enough to follow us. We passed a pretty waterfall during the day, formed by a tributary falling into the Batang Padang from the right, as you go up stream. There was a fine rainbow formed by the spray, which the Malays would have it was a *hantu*.

We camped again on the banks of the river, and on the 11th followed it up for some hours. The track taking us over some places which were anything but easy walking, or rather climbing. We then left the river, shortly after passing a fine waterfall, or more properly succession of falls, and ascended Gunong Ulu Batang Padang, and camped on its N. E. face at a height of 4,170 feet above the sea.

On the 12th we went up to the summit of the mountain, and from the "Crow's Nests" on the top of the trees, that were made some six months before by KALANA during the first expedition to these mountains; and were so fortunate as to obtain fine views of the Kinta Hills and the intervening country. I took two photographs, from one of these unsteady and perilous perches, of the hills and valleys which constitute what is so inaccurately described as "Cameron's Plateau."

We decided that the route taken by the late Mr. CAMERON must have been through the valley next to that of the Batang Padang, and divided from it only by the Laut Tingal ridge, and not more than four miles distant, as the crow flies, from the mountain we were then on.

On the 13th we again went up to the "Crow's Nests" to make sure of some of the hills which we could not make out on the previous day, and to settle on the course to take to reach Gunong Brumbum. This day we distinctly saw Batu Gaja in Kinta, bearing 283.30. This sight removed all doubt as to the

course taken by Mr. CAMERON in his journey from the Sungei Ryah to Pahang. Gunong Brumbun was exactly E. S. E. from us, but there was a valley and then a mountain, rather higher than the one we were then on which was 5,270 feet high, and then another deep valley to be traversed before the real ascent of it could be commenced.

On our return in the afternoon to the camp, we found MAHROPE had arrived. His foot was nearly well again, we were glad to see. With him were the Sakais who were sent back on the 12th to bring on the baggage left at Kuala Sergum.

On the 14th we moved to a new camp which had been prepared during the two preceding days on a better site than that occupied by the old one and with a small clearing round it, so as to allow of the sun drying off the numerous botanical specimens we had been collecting.

Early on the morning of the 15th we, that is, 3 Malays, 2 Klings, 16 Sakais and ourselves, left the new camp in charge of JELLAH and a Malay, after having discharged all the other Sakais, and ascended nearly to the summit of Gunong Ulu Batang Padang, then struck down the S. E. face of it, passing the old camp made by the previous expedition, and skirted round the hill till we came to the Gunong Ulu Sekum, round the eastern face of which, we also went, then crossed two long projecting spurs of it, and descended by a gully to the valley of a tributary of the River Jalai, on the banks of which we camped, at an elevation of 4,590 feet. This stream takes the drainage of the N. W. slopes of Brumbun and the S. E. slopes of Gunong Ulu Sekum and flows down in an E. N. E. direction to join the Jillah, as the upper part of the Pahang River is called.

Near our camp I again saw the same handsome yellow-flowered *Rhododendron* that I previously met with on Batu Puteh, but this time it was growing as an epiphyte high up on a huge tree.

I captured in the evening a particularly handsome member of the *Glomeridæ* family, probably belonging to the genus *Zephronia*. It was one of those creatures much like a large woodlouse, but really nearly related to the *Julidæ* (*Millepedes*). It was black striped transversely with pale blue-green and

orange. Each pale blue-green stripe having three spots of a deeper shade of the same colour on it.

During the night the rain came down in torrents, and as the roof leaked badly we had a very disturbed and uncomfortable night.

On the 16th we ascended a ridge near the camp, and after many hours of climbing, through a singularly dense and thorny undergrowth, we came to a sort of saddle where there were some small pools of water, at a height of 5,890 feet, where all decided to camp.

While the huts were building we went on up the hill and reached the lower of the three points of the mountain, as seen from Tapa, but everything was wrapped in thick drifting fog, so we could see nothing of the view.

Again we had a miserable night, as the hut leaked worse than that at the last night's camp, and there was nothing for it but to roll up our bedding, place it so as to escape the worst leaks, and sit on it, while the rain lasted, which, unfortunately, was a good many hours. Next morning, the 17th, we again ascended the hill, and reached the highest point, and left a bottle there with a record of the ascent. We had our bedding and other things brought up, and laid out to dry, but it soon began raining and after waiting till between 11 and 12 o'clock and seeing no indication of the clouds either lifting or drifting away, we reluctantly returned to the camp and packed up, and started down to the permanent camp on Ulu Batang Padang, which we reached at a little before 6 p.m.

On making this ascent I fully expected to see a great change in the flora as the summit was reached, and was much disappointed to find it nearly the same as that on Gunong Batu Puteh.

There was one very handsome *Rhododendron*, with large white flowers delicately tinged with apple-blossom pink, growing freely and plentifully on the extreme bush covered summits. Another member of the same family had tiny bright yellow, bell-shaped flowers and small roundish, shiny, dark green leaves. One very marked difference between the flora of Batu Puteh and Brumbun is the total absence of fir trees on the latter mountain. The small bamboo called by

the Malays *buluh perindu* is, on the other hand, extremely plentiful on Brumbun and comparatively scarce on the other hill. I was fortunate in being able to collect flowering specimens of this elegant little bamboo, which is credited with mystic properties by the natives, and is in much request by love lorn swains, whose mistresses are cold and irresponsive. In all I added 47 species of plants to my collection, but this number fell far short of what I had expected.

The height of the highest point of Brumbun as shown by the aneroid was only 6,860 feet, but I think that there must be some mistakes about this, but whether arising from any fault in the instrument or from the disturbed state of the weather at the time of the ascent, I am unable to say. Unfortunately we could not see Batu Puteh, and on neither of my two ascents of that mountain was I able to get a sight of Brumbun, but undoubtedly the latter is much the loftier of the two. One thing is certain, that within a radius of 20 miles, there is no other mountain higher than Brumbun, with the possible exception of Yang Yop. Mr. SWETTENHAM, some few years back published a note in the Straits Royal Asiatic Society's Journal on a new mountain seen in Perak from Gunong Arang Para, and from that description and the bearing he gives (102°) Brumbun is most probably the peak he then saw. This mountain is in Pahang, as the water from all faces of it flows either into the Sungei Inchi or the Jillah, and subsequently into the Pahang River. The valleys at the base of the mountain contain much excellent planting land, at about a mean elevation of 4,000 feet. There is also good land on the lower slopes of the mountain itself, but the higher portions of it are very steep, though the soil appears to be of exceptional richness.

The 18th was occupied in drying clothes and bedding, and packing up everything ready for a start the next day, as we had decided to try and cut across into the valley of the Telum, and follow up that river to its source, and then cross the hills and descend into Kinta, so as to settle beyond dispute the situation of the planting land explored by Mr. CAMERON.

Accordingly on the 19th we left the camp on Gunong Ulu Batang Padang and directed our course so as to reach the head

of the Batang Padang valley, to ascertain the height of the pass or watershed dividing the waters flowing into Perak on the one side, and Pahang on the other, which we found to be 3,800 feet above sea level.

Our party consisted of 16 Sakais, two Malay boys, KALANA the Malay *krani,* one Kling coolie and ourselves. We only took provisions sufficient for 5 days, besides our clothes; all the collecting things, guns, &c., we left at the camp in charge of JELLAH and my other two men.

The course taken to find the top of the pass was about North-East and the consequence was that we went a long way out of our proper direction, which ought to have been W. N. W. Our progress was very slow, as we had, as on the ascent of Gunong Brumbun, to cut a track the whole way. We camped by the side of a small stream, and while the banana leaf huts were being built, Mr. C. WRAY and I went up a hill near by in the hopes of getting a sight of some hills whose outlines we know, but beyond catching a glimpse of Brumbun we saw nothing that could be recognised.

The next day, the 20th, we took a westerly course which led us diagonally across the Batang Padang valley, and eventually on to the ridge dividing it from the valley of the Telum. On the top of this ridge there was a good Sakai track, which we followed for some time until it began to take a S. W. course, when we left it and struck down a spur in a northerly direction into what we hoped was the Telum Valley, and at about 4 P. M. came to that river, which was about 60 feet broad at the place we first saw it, at an elevation of 3,200 feet. We here camped on the site of one of Mr. CAMERON'S old camps, and by the side of the river was a track which was undoubtedly his track. The elephant marks being still distinctly visible. MAHROPE, who was with Mr. CAMERON on his journey through this valley, told us that two days' march further down the stream would take us to a place where the river was navigable for *rakets.*

Growing along the banks of the river, we found quantities of violets with pale coloured, but sweet-scented flowers, which have been identified by Dr. KING as *Viola Thomsoni,* and are said by him to be common to the mountains of India, Java, and Sumatra. There were also a considerable number of species

of *Compositæ*. It was quite a surprise to us to find these temperate forms of plants in a valley at quite a low elevation when the mountain tops had been found to be covered with distinctly tropical vegetation. The birds I saw here were all hill forms, but I saw nothing that I had not previously met with, either on the Larut Hills or on Batu Puteh; though it is probable that a stay of a month or two would be rewarded by many new species.

This valley and those adjoining it contain some of the finest planting land which I suppose is to be found anywhere on the mountains of the Peninsula, particularly when it is remembered that when the railway is constructed to Tapa and the cart-road from there up the valley of the Batang Padang it will be within a day's journey of a fine port. Such combined advantages of elevation, exposure, easy transport and good soil, are, I believe, not to be met with either in Ceylon or in the hill districts of India.

Mr. CAMERON'S original description of this hill country is fairly accurate if the Malay word *"pamor,"* is translated correctly as "valley" instead of "plateau" land. The lofty mountains range closing in the hill country to the East that is montioned by him and estimated to be over 8,000 feet high is Gunong Brumbun, and another large hill mass to the East of it. To the North it is closed in by the Yang Yop range. Two large tributaries having their source on Yang Yop itself and one of them seems to be the largest of the many streams which, flowing down from the North, West and South, eventually form the Pahang River.

On the 21st we followed the elephant track up the valley, but after going some way lost it amongst some half-grown up Sakai ladangs. We then sometimes cut through the jungle and at others followed any Sakai tracks which went in the direction we wished to take. At about one o'clock we came to a place where the river divided, and we followed up the northern branch to near its source and on the top of a hill came on a Sakai house and decided to put up in it for the night.

The owners fled at our approach, so we sent some of our Sakais after them, and about an hour or so afterwards three

of the men returned, but were a long time in doubt as to our intentions.

The promise of some *sarongs* and knives induced our hosts to agree to show us a way over a pass on the southern spur of Gunong Chabong. It would have been interesting to have recovered CAMERON'S track, but as we had already been out three days and so had only provisions for two more, we decided to take the southern track. The branch of the Telum we had followed has its source on Gunong Enas, and as far as we could understand from the local Sakais, CAMERON'S track was more to the North, in fact, followed the ridge of hills forming the northern boundary of the upper part of the Telum Valley.

The house in which we passed the night was a large and well built one and seemed to be occupied by two families. It was at an elevation of about 4,000 feet, and being perched on the top of a cleared hill fully exposed to the winds we found it very cold.

Hanging up in the house were strings of the lower jaws of monkeys, musangs and other animals, and in another house we saw bunches of hornbill skulls. They are kept hanging up in the smoke as trophies in the same way as the Dyaks keep human heads in their houses. Another custom which seems to point to a connection between the two races is that they keep large fires burning in the centre of their houses during the night, and that it is only during the first part of the night that they sleep, after that they sit up round the fire and talk till morning.

The spirits of all our following were much higher than they had been since we left Gunong Ulu Batang Padang, as hopes were now entertained of reaching Kinta, which, until our falling in with these Sakais, they had deemed to be impossible.

Accompanied on the 22nd by our hosts of the preceding night we returned to the foot of Gunong Jimawah, a steep rocky hill which juts out into the Telum Valley, and followed the branch of the river which passes on the southern side of it, and at about 1 P. M. reached the pass between the source of the Telum and the source of the Kampar River. This pass is 4,170 feet above sea level, and is a narrow ridge with sides so nearly vertical that the ascent on one side and the descent on the

other was very difficult and even dangerous. The more so as the course both up and down was among the slippery rocks of the beds of two mountain torrents. To add to our discomforts the rain fell heavily the greater part of the day, chilling us to the bone, and rendering everything more slippery than it would otherwise have been. Mr. C. WRAY slipped and fell on a rock in the stream and hurt his knee rather badly, and I was troubled with a sore foot, the result of an abrasion caused by sand in my boot two days previously and the subsequent almost constant immersion in more or less dirty water.

The pass on the south of Chabong, though about 1,000 feet lower than that over which Mr. CAMERON went, is, as far as we could see, quite impracticable for a road.

Chabong itself is very rocky and precipitate and the hill to the south seems little better.

The change in the soil on crossing the watershed was most marked. On the Pahang side the soil, except just near the top of the ridge, was deep, free and rich, while on the Kinta side it was a hard, greasy, pale yellowish clay.

At about 4 P. M. we had descended to an altitude of 2,400 feet, and coming to a Sakai house, put up in it for the night. The house was in a large clearing planted with Chinese millet, which is known by the Sakai name of *Sekua*, and the Malay name of *Ekor Kuchin*. This grain is largely grown by the Sakais both in these hills and in the Plus District, but we saw no rice in any of the Sakai ladangs, and the staple food stuff seemed to be *Ubi Kayu*.

They also grow sweet potatoes, sugar-cane and pumpkins. No fruit of any kind is planted, except in the settlements near the Malay *kampongs*, but tobacco we saw in the most out-of-the-way ladangs on the hills. The Sakais in the Telum Valley and also on the Kinta side of Chabong acknowledge Toh SONG of Batu Pipis, near Kuala Dipang as their Chief.

Early on the morning of the 23rd we made a start and continued down the Kampar River—here grown to a large stream—and with difficulty forded. More than half the way we were led either in the water or over the rocks of the river bed and were continually crossing from side to side of the river.

Sakai tracks, where possible, invariably follow the bed of

some stream and there is thus nothing to guide any one in attempting to follow one. This, we were informed, is intentional and, in times past, was a necessary measure to prevent their being followed and hunted out of their mountain homes by the Malays.

The last crossing of the Kampar was made on a huge tree trunk, by the bare-footed portion of the party and then we took a track leading to Gopeng, which we reached at about 6 p.m., after a march of nearly 12 hours. The ragged and travel stained appearance of the whole party seemed to afford much amusement to the Chinese in the streets of Gopeng, and we were received with shouts of derisive laughter by the crowd round the gambling farm. We put up in the Rest-house, and thoroughly enjoyed sleeping on the plank floor (the beds being engaged) after a three weeks' spell of beds made of jungle sticks.

After buying knives and *sarongs* for the guides, on the morning of the 24th we proceeded to Kota Bharu and on the 25th continued our way, following the Kuala Dipang Road. When about four miles had been traversed MAHROPE was taken ill with fever and became light-headed, and could not walk any further, so he had to be carried to Kampong Plikat and left there in a Malay house, with two of the Sakais to look after him. On reaching Kuala Dipang we sent KALANA and five men, who had arrived by another road from Gopeng, back to Kampong Plikat, to bring him on the next morning. On the 26th KALANA arrived bringing MAHROPE, and we then started, leaving the Kling to look after him, and reached Tapa in 7 hours including stoppages.

The wet weather had by this time set in in earnest, so that I decided not to go up to the camp on Ulu Batang Padang again, but only to send up some Sakais to bring down all the collections left there.

On the 2nd November, KAREM and 15 Sakais therefore left Tapa, and on the 10th the whole of the party returned, and on the 16th we went down the river in two boats to Telok Anson, and reached Larut on the 19th in the S. S. *Mena*.

The botanical specimens collected during the trip numbered 1,200 species, and the birds 187 skins. The plants have all

been sent to the Royal Botanic Gardens, Calcutta, to be worked out, and the birds to the British Museum. I am informed by Mr. BOWDLER SHARPE that there are 9 or 10 new species amongst the collection, thus bringing up the number of new species from the mountains of Perak to 16.

Mammals were very scarce, and did not number more than a dozen specimens.

Of insects and other natural history objects, I made fairly good collections, and added much to the series of Sakai objects in the Museum as well as collecting others to send to the British Museum.

L. WRAY, Jr.,
Curator, Perak Museum.

June, 1888.